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EXAMINER

LIGHTFOOT, ELENA TSOY

ART UNIT

PAPER NUMBER

1792

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/516,610	Applicant(s) PASQUIER ET AL.	
	Examiner Elena Tsoy Lightfoot	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 7, 11, 20 and 30-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-10, 12-19 and 21-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/3/04</u> . | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-29, species, (A)(i) and (B)(ii), in the reply filed on September 22, 2008 is acknowledged. The traversal is on the ground(s) that PCT Rule 13.1, as embodied in 37 C.F.R. 1.475, teaches that claims to a product (i.e., group III) and processes of using said product, the additional groups, should be maintained together in the same application. This is not found persuasive because under PCT Rule 13.1 the unity exists between different groups of claims only when no special technical feature *common* to all groups of the claims is known in the art. However, a cross-linkable polysiloxane *common* to all groups of the claims (i.e. uniting them) is shown to be anticipated by Frances et al (FR 2800380A), and, thus, unity does not exist between the groups.

The requirement is still deemed proper and is therefore made FINAL.

Status of Claims

Claims 1-41 are pending in the application. **Claims 7, 11, 30-41 are withdrawn** from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and species. **Claim 20 is withdrawn** from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species of kerosene.

Information Disclosure Statement

The information disclosure statement filed December 3, 2004 has been fully considered. An initialed copy of said IDS is included herein.

Drawings

The drawings filed December 3, 2004 are accepted.

Claim Objections

1. Claims 1-6, 8-10, 12-19 and 21-29 are objected to because of the following informalities:
it is advised to change “characterized in that” to “wherein”. Appropriate correction is required.

Claim 1, “cross linking” should be changed to “cross-linking” as in claim 11.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-6, 8-10, 12-19 and 21-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Neither claims nor the disclosure describes how to use claimed method for thermal insulation. Should the gel be positioned directly onto an object to be insulated or into an external jacket?
4. Claims 1-6, 8-10, 12-19 and 21-29 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The surface where the gel should be positioned (whether directly onto an object to be insulated or into an external jacket) is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure.

See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

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5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-6, 8-10, 12-19 and 21-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites a limitation “positioning a gel formed between an insulating liquid base ... and at least one gelling agent” which is confusing because it is not clear *where* the formed gel is positioned. Is it formed and positioned between the insulating liquid base and the agent?

For examining purposes the phrase was interpreted as “positioning a gel formed ~~between~~ from an insulating liquid base ... and at least one gelling agent, on an object to be insulated”.

Claim 8 recites “with at least one of symbols Z representing a cross-linkable group, using one of the cross-linking modes defined below”, which renders the claim indefinite because the modes are not defined below.

Claim 21 recites the limitation "**the** positioning time" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 recites a term “positioning time”, which renders the claim indefinite because the meaning of the term is unclear.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claim 1, 3-6, 24-26, 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Joubert (EP 933124A1).

Joubert discloses a method for heat insulation of conduits for oil production wells (claimed flowline or pipeline) comprising mixing a diluent (claimed liquid base) such as an alcohol, ketone, ester or beta-keto ester, with a gelling catalyst and a gel precursor such as polysiloxane (See claim 4) and injecting a resulting mixture into a confined space, and gelling the mixture *in situ* (claimed crosslinking the precursor) (See Abstract).

As to claims 3-6, limitations of the claims are not addressed because phase change material in claim 1 is *optional*.

As to claims 28-29, a singularity on a flowline or pipeline limitations of the claims are not addressed because the singularity is *optional*.

9. Claims 1, 3-6, 8, 12, 14, 18, 19, 24-26, 28 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Jeram (US 4072635).

Jeram discloses a method for thermal insulation comprising filling e.g. tubes containing electrical conductors with a gellable composition (See column 5, lines 42-43) comprising a mixture (1) vinyl-terminated polysiloxanes containing in-chain vinyl groups (See column 1, lines 29-31), (2) a liquid hydrogenpolysiloxane (See column 1, lines 29-31, 53-67), non-reactive fluid diorganopolysiloxane as diluent (claimed liquid base) (See column 5, lines 7-18), and (3) a platinum or platinum compound catalyst for the SiH-olefin addition reaction (claimed

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hydrosilylation catalyst) (See column 3, lines 58-68), and curing the composition *in situ* (See column 6, lines 3-6).

As to claims 3-6, limitations of the claims are not addressed because phase change material in claim 1 is *optional*.

As to claims 18-19, limitations of the claims are not addressed because phase change material in claim 1 is *optional*.

As to claims 28-29, a singularity on a flowline or pipeline limitations of the claims are not addressed because the singularity is *optional*.

10. Claims 1-6, 8 and 9 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hupfield (US 7019098).

Hupfield discloses a method for insulation materials for electric cables (See column 6, lines 25-26) comprising forming an elastomeric gel in a non-reactive liquid organic or silicone material (claimed liquid base) (See column 3, lines 60-63) by crosslinking polyorganohydrogensiloxane having Si-H group (claimed gelling agent comprising polysiloxane resin) with diunsaturated hydrocarbon or fluorohydrocarbon (See column 2, line 64 to column 3, line 1) in the presence of platinum catalyst for the SiH-olefin addition reaction (claimed **hydrosilylation** catalyst) (See column 2, lines 46-56).

It is the Examiner's position that electric cables are insulated by crosslinking an insulation composition *in situ*.

As to claim 2, liquid organic material (claimed liquid base) includes aliphatic hydrocarbons such as pentane, cyclohexane, heptane (See column 4, lines 17-19).

As to claims 3-6, limitations of the claims are not addressed because phase change material in claim 1 is *optional*.

As to claim 8, the polysiloxane precursor of Hupfield having Si-H group (See column 2, lines 13-30) reads on claimed polysiloxane resin.

As to claim 9, when the concentration of the polysiloxane in the liquid organic material is at least **5 or 10%** by weight, a gel is generally formed comprising the crosslinked polysiloxane reaction product dispersed throughout the liquid organic or silicone material (See column 3, lines 49-55).

11. Claims 12, 14, 15, 18 and 19 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hupfield and Yoshino et al (JP 2000281791A).

Hupfield further teaches that the use of the diunsaturated hydrocarbon or fluorohydrocarbon as a crosslinker gives more reaction control than vinylsiloxane as disclosed in JP-A-00-281791 (See column 3, lines 21-24) to Yoshino et al. Thus, the use of vinylsiloxane for crosslinking polysiloxane is known in the art.

As to claims 18-19, limitations of the claims are not addressed because phase change material in claim 1 is *optional*.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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13. Claims 2-6, 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joubert or Jeram, further in view of Hupfield.

As to claim 2, Joubert/Jeram, as applied above, fails to teach that aliphatic hydrocarbons are as the liquid base.

Hupfield teaches that crosslinking polysiloxane is preferably carried out in non-reactive liquid silicone material (i.e. low molecular weight siloxane fluids, See column 1, line 5) or organic material (See column 3, lines 60-61) such as aliphatic hydrocarbons (See column 4, lines 19-20), alcohols (See column 4, lines 22-23), ketones (See column 4, lines 25-28) and esters (See column 4, lines 28-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out crosslinking polysiloxane in Joubert/Jeram in aliphatic hydrocarbons instead of silicone, alcohols, ketones or esters since Hupfield teaches that crosslinking polysiloxane may be carried out in all above solvents.

As to claim 21, Hupfield teaches that carrying out the hydrosilylation reaction is simply a matter of mixing the above ingredients, including the catalyst, at room temperature until a gel is formed. Higher temperatures to speed up the process can be used, if desired. See column 3, lines 55-59.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant cure time parameters (including those of claimed invention) in the cited prior art through routine experimentation depending on particular coating composition in the absence of a showing of criticality.

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As to claim 22, Hupfield teaches that antibacterial agents such as chlorohexadiene gluconate and antifungal agents such as miconazole nitrate may be added to the composition (See column 5, lines 66-67).

14. Claims 8, 9, 12-16, 18, 19 and 21-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joubert in view of Craubner (US 4348243).

As to claims 8 and 12, Joubert fails to teach that the gelling agent comprises two functionalized polysiloxanes: a vinyl-polysiloxane and polysiloxane having Si-H group.

Craubner teaches that polysiloxanes that gel by crosslinking through *either* condensation *or* addition reaction (See column 2, lines 66-68) between polysiloxane having Si-H group and vinyl-polysiloxane (See column 3, lines 17-24) may be used for forming thermal insulation of pipes (See column 2, lines 5-12). In other words, Craubner teaches that condensation curing polysiloxanes are functionally equivalent to addition reaction curing polysiloxanes for forming thermal insulation. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used polysiloxanes that gel by crosslinking through addition reaction in Joubert instead of condensation curing polysiloxanes the expectation of providing the desired gelled thermal insulation since Craubner teaches that condensation curing polysiloxanes are functionally equivalent to addition reaction curing polysiloxanes.

As to claims 9, 13, 15, 16, it is held that concentration limitations are obvious absent a showing of criticality. *Akzo v. E.I. du Pont de Nemours* 1 USPQ 2d 1704 (Fed. Cir. 1987). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant concentration parameters (including those of

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claimed invention) in the cited prior art through routine experimentation depending on particular application in the absence of a showing of criticality.

As to claim 14, The Examiner takes official notice that it is a common knowledge in the art to use a hydrosilylation catalyst such as platinum based catalyst for carrying out the addition reaction between polysiloxane having Si-H group and vinyl-polysiloxane.

As to claims 22-23, Craubner teaches that *biocides* (See column 3, line 8) and *hollow glass microspheres* (See column 2, lines 35-36) can be added to an insulating composition.

As to claims 24-27, Joubert fails to teach that an insulating mixture is interposed between the flowline and a protective external jacket. Craubner teaches that pipes can be insulated by interposing a mixture between the flowline and a protective external jacket (See column 3, lines 30-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have insulated with the expectation of providing the desired

As to claims 28-29, a singularity on a flowline or pipeline limitations of the claims are not addressed because the singularity is *optional*.

15. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joubert.

Joubert fails to teach that the liquid base represents 70% to 99.5% and said gelling agent represents 30% to 0.5% of the total weight of the mixture. However, it is held that concentration limitations are obvious absent a showing of criticality. *Akzo v. E.I. du Pont de Nemours* 1 USPQ 2d 1704 (Fed. Cir. 1987).

16. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joubert or Jeram or Hupfield, as applied above, further in view of Buckingham et al (US 20030082129).

The cited prior art fails to teach the use of compatibilizing agent.

However, it is well known in the art to use a compatibilizing agent to homogenize a mixture of components that are immiscible with each other, as evidenced by Buckingham et al (See P46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a compatibilizing agent in a gellable composition of the cited prior art in case of poor compatibility of components with the expectation of providing the desired homogeneous mixture of components.

17. Claims 9, 13, 15, 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeram.

It is held that generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant concentration and temperature parameters (including those of claimed invention) in Jeram through routine experimentation depending on particular application in the absence of a showing of criticality.

18. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hupfield and Yoshino et al.

As to claim 13, Hupfield teaches that the stoichiometric ratio of the polyorganohydrogensiloxane to diunsaturated hydrocarbon or fluorohydrocarbon is generally in the range 1:2 to 2:1 (See column 3, lines 46-49). Since the stoichiometric ratio represents ratio of

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Si-H to vinyl group, it would be obvious to use the same ratio for crosslinking polyorganohydrogensiloxane with vinylsiloxane of Yoshino et al.

19. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jeram or Hupfield and Yoshino et al, as applied above, further in view of Buckingham et al for the reasons discussed above.

20. Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hupfield.

As to claim 21, Hupfield teaches that carrying out the hydrosilylation reaction is simply a matter of mixing the above ingredients, including the catalyst, at room temperature until a gel is formed. Higher temperatures to speed up the process can be used, if desired. See column 3, lines 55-59.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant cure time parameters (including those of claimed invention) in Hupfield through routine experimentation depending on particular coating composition in the absence of a showing of criticality.

As to claim 22, Hupfield teaches that antibacterial agents such as chlorohexadiene gluconate and antifungal agents such as miconazole nitrate may be added to the composition (See column 5, lines 66-67).

21. Claims 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joubert or Jeram or Hupfield, as applied above, further in view of Vergouw (US 4941773).

The cited prior art fails to teach that: a flowline or a pipeline or a singularity on a flowline or pipeline is insulated (Claim 24, 26, 28) using an external jacket (Claim 27).

As to claim 24-27, Vergouw teaches that power cables may be thermally insulated by placing the power cables into pipeline 4 that together with other pipelines 2 and 3 for e.g. oil or gas are placed into a carrier pipe 1 (claimed external jacket), lowering the carrier pipe to the seabed (See column 3, lines 60-63), filling the space around the lines 2-4 with an insulation composition by varying pressure (See column 4, lines 39-40), and gelling the composition (See FIGS. 1 and 2; column 2, lines 53-64; column 4, lines 3-12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have thermally insulated electric cables of the cited prior art by placing them into a carrier pipe together with other pipelines to be insulated, lowering the carrier pipe to the seabed, filling the carrier pipe with an insulation composition by varying pressure, and gelling the composition, as taught by Vergouw.

As to claims 28-29, a singularity on a flowline or pipeline limitations of the claims are not addressed because the singularity is *optional*.

22. Claims 22, 23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hupfield in view of Vergouw, as applied above, and further in view of Craubner.

Hupfield fails to teach that the mixture further comprises at least one filler selected from hollow glass microbeads, fly ash, macrobeads and hollow fibres.

Craubner teaches that thermal insulation material which has a broad temperature range and is resistant to pressure, water penetration and deterioration from the environment can be provided on a pipeline (See column 1, lines 41-47) by filling the space between a jacket (which is concentrically arranged around the pipeline) with contiguous *hollow* structures 2, then adding a thermosetting composition 3 comprising **addition** curing organopolysiloxane (See column 2,

lines 66-68) to fill the interstices between the contiguous structures (See column 2, lines 3-11).

The thermosetting compositions which cure to form elastomers and which are used for filling the interstices between the contiguous structures can be mixed with additives such as *hollow glass* microspheres (See column 2, lines 35-36), *biocides*, etc. (See column 3, line 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have filled the space between pipelines and a jacket Hupfield in view of Vergouw first with *hollow glass* microspheres and then with **addition** curing organopolysiloxane with the expectation of providing the desired insulation material which has a broad temperature range and is resistant to pressure, water penetration and deterioration from the environment, as taught by Craubner.

23. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jeram in view of Craubner for the reasons discussed above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy Lightfoot whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Friday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Elena Tsoy Lightfoot, Ph.D.
Primary Examiner
Art Unit 1792

November 4, 2008

/Elena Tsoy Lightfoot/